

## Message Text

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UNCLAS SECTION 1 OF 2 BELGRADE 4797

E.O. 11652: N/A  
TAGS: BEXP, YO  
SUBJECT: MARKET IN YUGOSLAVIA FOR JANUARY TSS ON FROZEN FOOD  
EQUIPMENT AND TECHNOLOGY

SUMMARY: MEETING WITH FROZEN FOOD EQUIPMENT AND TECHNOLOGY EXPERTS REVEAL KEEN INTEREST IN USDOC TSS. YUGOSLAV FOOD INDUSTRY, WHICH IS ALREADY PRODUCING LIMITED QUANTITIES OF FROZEN FOODS IS PLANNING MAJOR EXPANSION IN PLANT AND EQUIPMENT TO SUPPLY FROZEN FRUIT, VEGETABLES, AND READY-TO-EAT MEALS ON LARGE SCALE TO INSTITUTIONAL AND CONSUMER MARKETS. INTEREST WAS EXPRESSED IN THE FOLLOWING: WIDE VARIETY OF REFRIGERATION AND FREEZING EQUIPMENT; U.S. EXPERIENCE WITH DIFFERENT COOLING MEDIA AND METHODS OF APPLICATION; PACKAGING TECHNIQUES AND MATERIALS; ECONOMICAL PLANT DESIGN; AND MODERN DISTRIBUTION SYSTEMS. BOTH EMBASSY AND USDOC ADVANCE PERSON AGREE THAT SEMINAR TEAM SHOULD INCLUDE SYSTEMS AND EQUIPMENT MANUFACTURERS PLUS GOOD DESIGN AND ENGINEERING FIRM WHO ARE PREPARED TO SPEAK AT FAIRLY HIGH TECHNICAL LEVEL.

END SUMMARY.

1. COMMOFF PRIMOSCH AND USDOC ADVANCE PERSON ROBINSON VISITED THREE PROMINENT FOOD INDUSTRY ORGANIZATIONS IN BELGRADE TO DISCUSS CURRENT TRENDS IN YUGOSLAV FOOD PROCESSING WITH REGARD TO FROZEN FOODS.

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2. YUGOSLAVIA'S FOOD PROCESSING INDUSTRY IS ON AN ENTIRELY DIFFERENT LEVEL THAN THAT OF POLAND AND HUNGARY. YUGOSLAVS ARE ALREADY INTO PRODUCTION OF FROZEN FRUITS AND VEGETABLES FOR INSTITUTIONAL AND WHOLESALE DISTRIBUTION, AND HAVE CONCRETE PLANS FOR FURTHER DEVELOPMENT. FOR EXAMPLE, FROZEN RASPBERRIES, PEAS, CORN, PASTRIES AND PEPPERS ARE ON SALE IN BELGRADE BUT NOT IN OUTLYING DISTRICTS DUE TO INADEQUATE TRANSPORTATION/DISTRIBUTION SYSTEM.

THERE IS LARGE POTENTIAL MARKET FOR FROZEN, READY-TO-EAT MEALS, AS YUGOSLAV REQUIRES THAT BUSINESSES AND FACTORIES SERVE EMPLOYEE LUNCHES. PRODUCTION OF 200,000 LUNCHES FOR BELGRADE AREA WILL SOON BE UNDERTAKEN BY LARGE AGROINDUSTRIAL ENTERPRISE AND WILL REQUIRE MAJOR INVESTMENT IN FROZEN STORAGE FACILITIES. PRODUCTION AND DISTRIBUTION OF FROZEN MEALS IN OUTLYING REGIONAL INDUSTRIAL COMPLEXES IS DEFINITE MARKET POSSIBILITY. THERE IS DEBATE ON PRACTICALITY AND ECONOMY OF FROZEN VERSUS VACUUM PACKED MEALS (WHICH YUGOSLAVIA NOW PRODUCES). CANNING INDUSTRY IS VERY WELL DEVELOPED. SEVERAL PROBLEMS IN FROZEN FOOD INDUSTRY WITH POTENTIAL FOR TSS ARE: NEW TECHNOLOGIES FOR CHILLING, FREEZING AND STORING FRUITS, VEGETABLES, READY-TO-SERVE DISHES, POULTRY AND MEAT; DISTRIBUTION SYSTEM FOR FROZEN FOODS; PACKAGING OF FROZEN FOODS OF ALL TYPES.

3. COLD STORAGE IN YUGOSLAVIA AMOUNTS TO 104 CUBIC METERS PER 1000 INHABITANTS, MORE THAN FOR U.S., BUT PROBLEMS EXIST IN EFFICIENT UTILIZATION OF THIS SPACE AND LACK OF FREEZER STORAGE CAPACITY. COLD STORAGE WAREHOUSES ARE GENERALLY CONSTRUCTED OF STEEL PLATE AND POLYURETHANE SANDWICH. YUGOSLAVS MANUFACTURE PIPING, EVAPORATORS. VENTILATORS AND CONSTRUCTION COMPONENTS BUT MUCH OF THE WORKING EQUIPMENT IS IMPORTED. YUGOSLAVS ARE WORKING WITH EQUIPMENT UTILIZING AMMONIA AND CO<sub>2</sub>, AND INTERESTED IN LEARNING ABOUT THE NEWEST TECHNOLOGY AND EQUIPMENT IN THIS AREA. LIQUID NITROGEN IS OF HIGH INTEREST FOR THERE IS A LACK OF EXPERIENCE IN THIS AREA. FREON IS NOT USED IN REFRIGERATION AS IT IS NOT UNCLASSIFIED

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PRODUCED HERE. PRESENT FACILITIES UTILIZE INDIRECT AMMONIA FREEZING AND DIRECT OR CONTACT FREEZING. FACILITIES ARE NOW BEING DESIGNED FOR LIQUID NITROGEN FREEZING. TUNNEL AND PLATE FREEZERS WITH FREEZING TIMES OF 20 MINUTES TO 4 HOURS ARE UTILIZED. THE U.S. EXPERIENCE WITH FREEZE DRYING HOLDS INTEREST.

4. MEETING WITH JUGOFRIGO, ASSOCIATION OF COLD STORAGE NETWORK, WAS TYPICAL IN THAT REPRESENTATIVES STRESSED THE EXCELLENT TIMING FOR A TSS ON FROZEN FOODS. U.S. FROZEN FOOD TECHNOLOGY NOT WIDELY KNOWN HERE; COUNTRY IS EMBARKING ON FROZEN FOOD DEVELOPMENT; AND ASSOCIATION ITSELF IS REORGANIZING TO BETTER PROVIDE TECHNICAL INFORMATION AND SERVICES TO CLIENT ENTERPRISES.

5. ASSOCIATION STRESSED FAMILIARITY WITH AND NEED FOR THE FOLLOWING COMPONENTS: COMPRESSORS OVER 500 KILOCALORIES PER HOUR; CONTINUOUS FREEZING (TUNNEL); PLATE FREEZERS; REFRIGERATION EQUIPMENT FOR

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USING AMMONIA (NH3), CARBON DIOXIDE (CO2) NITROGEN, FREON 12 AND 22; AUTOMATION, PROCESS CONTROL, AND COMMAND INSTRUMENTATION FOR FREEZING AND COLD STORAGE FACILITIES. PRESENT SUPPLIERS ARE LEWIS, FIROSCANDIA, ATLAS SABRO, NORMANDIE, SAMIFI BABCOCK, GRASSO, LINDE, HALL, THERMO-MECHANICA, AND CUNE.

6. MEETING WITH SRBIJA-PROJECT WHICH DOES ENGINEERING DESIGN FOR FROZEN FOOD FACILTIES RESULTED IN FOLLOWING INFORMATION: FIFTEEN TO TWENTY FRUIT AND VEGETABLE COLD STORAGE PLANTS IN YUGOSLAVIA ARE CONCENTRATED ON CARROTS, GREEN PEPPERS, PEAS, CAULIFLOWER, STRING BEANS, RASPBERRIES, STAWBERRIES AND SOUR CHERRIES. TYPICAL CAPACITY IS 5,000 TO 20,000 TONS, AND TYPICAL PACKAGE SIZE IS 0.5 KG. FOR MARKET AND 20 KGS. FOR HOTELS AND INSTITUTIONAL USERS. BOTH SIZES USE POLYETHYLENE BAGS, SOME GOING DIRECTLY TO USERS, AND SOME TO STORAGE IN STACKED PALLETS.

7. SRBIJA-PROJECT IS INTERESTED IN HEARING ABOUT FREEZING MEDIA SUCH AS AMMONIA, NITROGEN, CO2, AND ALSO FREON; THE U.S. EXPERIENCE WITH VARIOUS FRUITS, VEGETABLES AND MEATS PACKAGED TOGETHER, ALSO IN READY-TO-EAT FORM; SYSTEMS OF FROZEN FOOD PACKAGING AND THE FOOD BEHAVIOR WHEN PACKAGED, FROZEN AND STORED BY PORTION AND IN BULK; SYSTEMS OF PACKAGING FOR SPECIFIC END-USAGES SUCH AS RETAIL, HOTEL, INSTITUTIONAL CATERING, ETC; PACKAGING SYSTEMS FOR TRANSPORTATION; METHODS OF SELECTING FROZEN MEALS.

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8. SRBIJA-PROJECT IS INTERESTED IN COMPRESSORS, NH3 (AMMONIA) PUMPS, EQUIPMENT FOR COLD STORAGE CHAMBERS, PLATE FREEZERS, CONTINUOUS TUNNELS, AUTOMATION EQUIPMENT OF ALL KINDS, AND ALSO FREON EQUIPMENT THOUGH FREON NOT PRODUCED HERE.

9. NOTE THAT SRBIJA-PROJECT IS QUITE FAMILIAR WITH INDIRECT AMMONIA FREEZING AND DIRECT CONTACT FREEZING, AND USES LEWIS EQUIPMENT. THEY ARE VERY INTERESTED IN U.S. EXPERIENCE WITH LIQUID NITROGEN. SRBIJA-PROJECT WILL PARTICIPATE IN DESIGN OF NEW READY MEALS PLANT OF PKB, SECOND LARGEST AGROINDUSTRIAL ENTERPRISE IN YUGOSLAVIA. USING UNILEVER TECHNOLOGY, PLANT WILL HAVE CAPACITY OF PRODUCING 200,000 MEALS PER DAY MAINLY FOR INSTITUTIONS AND FACTORIES IN BELGRADE AREA.

10. REPRESENTATIVE OF INSTITUTE FOR MEAT TECHNOLOGY NOTED DEBATE ON FROZEN VERSUS STERILIZED VACUUM PACKED FOODS, ESPECIALLY READY-TO-EAT FOODS. MAIN PROBLEM WITH FROZEN FOODS IS DISTRIBUTION. PRESENTLY, MOST MEAT IS CURED OR SOLD FRESH. INTERESTS IN CLASSICAL CHILLING OF MEAT RELATE TO LATEST U.S. EXPERIENCE WITH (A) TEMPERATURE RANGES (B) TEMPERATURES FOR FREEZING TO PREVENT SPOILAGE AND QUALITY DAMAGE, AND (C) SPEEDS AND LENGTH OF CHILLING. OTHER INTERESTS APART FROM CLASSICAL CHILLING ARE: EXPERIENCE WITH ELECTRICAL STIMULATION IN CHILLING BEEF CARCASSES; APPLICATION OF LIQUID GASES, I.E. AMMONIA, CO<sub>2</sub> AND NITROGEN AND THE EQUIPMENT FOR DOING SO; LENGTH OF STORAGE OF FROZEN MEAT ESPECIALLY WITH REFERENCE TO FREEZE BURNS, MAINLY WITH POULTRY; ALL ASPECTS OF CONTINUOUS FREEZING (THE ONLY PROCESS OF INTEREST IN MEAT INDUSTRY); EXPERIENCE WITH POULTRY COOLING AND FREEZING INCLUDING WET VERSUS DRY PROCESSES; PROBLEMS WITH THE TRANSPORTATION OF READY-TO-SERVE FOODS; AND PACKAGING OF ALL KINDS FOR FROZEN AND CHILLED FOODS INCLUDING PLASTIC, ALUMINUM, STYROFOAM, ETC. QUESTION WAS RAISED ABOUT WHETHER PLASTIC BAG PACKAGING CAN PRODUCE OVER 40 PERCENT VACUUM.

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11. RECOMMENDATIONS ON TSS: BOTH SYSTEMS AND EQUIPMENT MANUFACTURERS PLUS A GOOD DESIGN AND ENGINEERING FIRM SHOULD BE REPRESENTED IN THIS SEMINAR. LEVELS AND THRUST OF PRESENTATIONS MAY HAVE TO CHANGE FOR YUGOSLAVIA. FOR EXAMPLE, FROZEN READY-TO-EAT MEALS ARE NOW A DEFINITE MARKET POSSIBILITY HERE. THIS IS NOT TRUE IN POLAND. HUNGARY IS PRESENTLY CONTEMPLATING ONLY FROZEN PASTRIES (AN OLD STORY IN YUGOSLAVIA) AND SPECIALTY FOODS. ANOTHER EXAMPLE: YUGOSLAV ENTERPRISES ARE SERVING AS CONSULTANTS ON COLD STORAGE PLANT CONSTRUCTION IN EASTERN EUROPE AND IN MIDDLE EAST. THE NEED IS FOR COMPONENTS AS LISTED ABOVE, SPECIALIZED PACKAGING EQUIPMENT AND SYSTEMS ON LARGE SCALE, I.E. WAREHOUSING, TRANSPORTATION AND IN-STORE STORAGE.

12. COMPANIES ABLE TO ADDRESS FOLLOWING AREAS ARE RECOMMENDED FOR TSS.

A. FROZEN FOODS DISTRIBUTION INCLUDING WAREHOUSING, TRANSPORTATION AND IN-STORE FACILITIES.

B. PACKAGING OF FROZEN FRUITS, VEGETABLES, POULTRY & READY-MADE FOODS.

C. PREPARATION OF READY-TO-SERVE MEALS, ALSO PASTRY (HUNGARY BUT NOT POLAND OR YUGOSLAVIA WHICH HAS FROZEN PASTRY).

D. REFRIGERATION COMPRESSORS, ESPECIALLY OVER 500 KILOCALORIES PER HOUR.

H. CONTINUOUS FREEZING EQUIPMENT.

F. PLATE FREEZING.

G. AUTOMATED EQUIPMENT FOR COLD STORAGE AND FREEZING FACILITIES INCLUDING PROCESS CONTROL AND CONTROL PANEL INSTRUMENTATION.

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H. AMMONIA PUMPS.

I. WHOLE FROZEN FOOD EQUIPMENT LINES FOR FRUITS AND VEGETABLES, (HUNGARY AND POLAND), AND FOR READY-TO-SERVE MEALS (YUGOSLAVIA).

J. FROZEN POULTRY (MAINLY YUGOSLAVIA WHICH IS RECONSTRUCTING AND MODERNIZING TWO PLANTS).

K. INSTITUTIONAL FROZEN FOOD CATERING.

L. ECONOMICS OF FROZEN VS. STERILIZED FOOD PRODUCTION.

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## Message Attributes

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